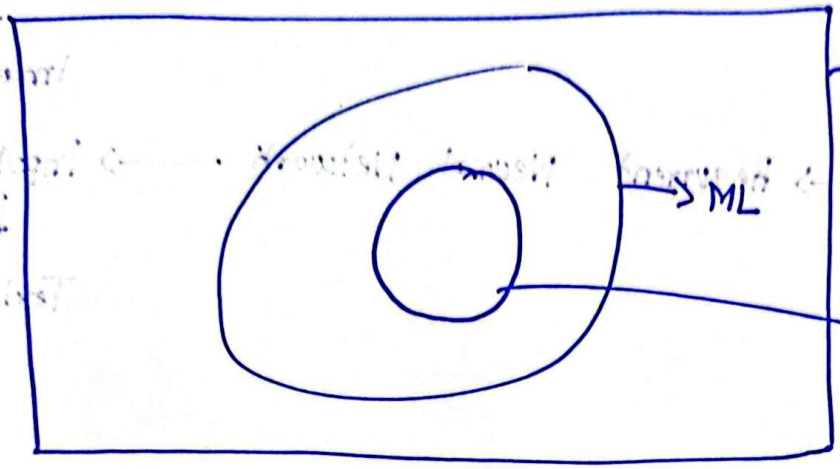
Deep Learning

→ Introduction



Examples

- Netflix recommendation systems
- Self-driving cars
- Amazon website

} The main aim behind artificial intelligence is to create applications that will be able to perform its own task

Machine Learning

It is a subset of AI, and it provides you stats tool to analyze the data, visualize the data, even to perform various operations such as forecasting predictions

Deep Learning

Deep Learning is a subset of machine learning. The main task of deep learning is to mimic the human brain. In deep learning, we will be specifically working with neural networks (multi-layer)

① ANN ⟶ Artificial Neural Network → Classification
                                  → Regression

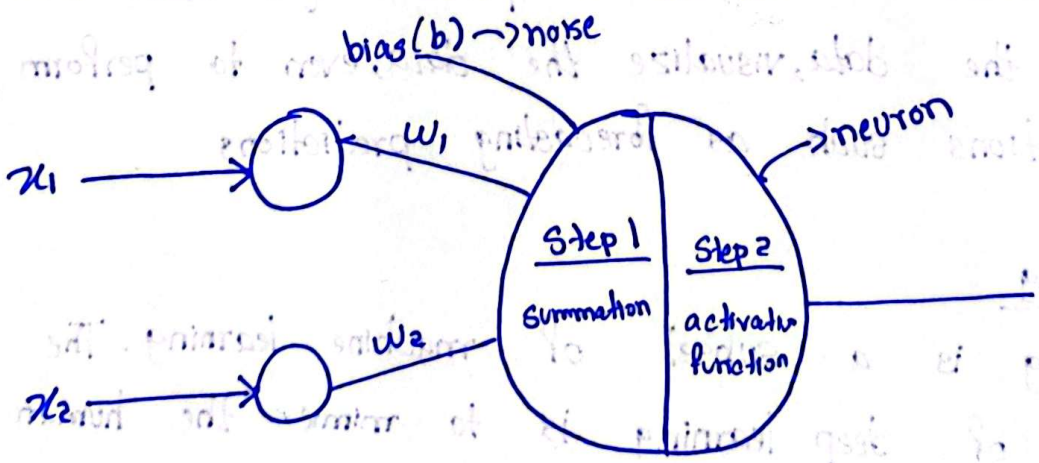
② CNN ⟶ Convolutional Neural Network ⟶ Input data ⇓ Images, Videos

③ RNN ⟶ Recurrent Neural Network ⟶ Input data ⇓ Text, Timeseries

⟶ Perceptron

A single layer neural network used in solving binary classification

IQ	Study hours	output
95	3	0
110	4	1
100	5	1



Step 1:

$$z = w_1x_1 + w_2 * x_2 + b$$

$$z = \sum_{i=1}^{n} w_i x_i + b$$

Step 2:

func(z)

> Advantages

① Use to solve linearly separable problems

> Disadvantages

① to cannot solve non-linear seq problems, will use multi-layer perceptron

—> Multi-layer Perceptron

① Forward Propagation

② Backward Propagation

③ Loss Functions

④ Activation Functions

⑤ Optimizers